Concord.

Honor Rolls of The Public Schools —Personals and Locals

Schools in town closed Friday. Honor rolls as follows: Judevine Memorial, grammar room, perfect attendance: Sadie Bedell, Willie Bedell, Sadie Green, Ralph Bennett, Brigham Hastings, May Young, Alice Reed, Hazel Miller; absent one day, Gertrude Gleason. Intermediate room, perfect attendance: Ralph Reed, Marion Hastings, Florence Hodgden, Raymond Douglas, Carrol Cobleigh, Charles Owen, Percy Smith; absent one day: Priscilla Carpenter, Grafton Hull, Ruth Hastings. Primary room: Helen Bennett, Mildred Hastings, Sybil Haviland, Grace Moyse, Nellie Moyse, Gwendoline Rook, Floyd Ash, Malcolm Ramsdell, Fred Rook, Elmer Sartwell; absent one-half day: Paul Lillicrap; absent one day, Marion Hodgden, Basil Cutting, Gerald Daniels. Gwendoline Rook and Grace Moyse have not been absent during the year. Helen Bennett was absent one day during year.

At North Concord school, perfect attendance: May McBeigh, Robert McBeigh, Flora Boucher, Clara Boucher, Johnny Boucher; absent one day: John McBeigh. At Castle school of 11 pupils, seven were perfect in attendance: Clyde McGinnis, Rupert McGinnis, Luther Stuart, Reginald Reed, Charles Richards, Mary Reed and Lou Richards. At Concord Corner those perfect in attendance were Clayton Rutledge, Bessie Rutledge, Willard Rutledge, Hazen Rutledge, Edith Jock, Royse Rivers, Clarence Williams; absent one and one-half days: Merlin Bradshaw. At the Royalston Corner school Evelyn Streeter, Lyle Spaulding, Addie Williams, Faeona Stockwell, and Etta Stockwell were perfect in attendance. Morris Nichols was absent one day. Faeona and Etta Stockwell had no marks during year.

Miss Vera Paine returned to her home in Standish, Me., Saturday and Miss N. A. Leonard to her home in Fair Haven the first of the week.

Mrs. William McInnes and daughter, Katherine, from Concord, N. H., are spending a few weeks with Mr. and Mrs. George H. Hastings.

Adah Chapter No. 39, O. E. S., will not hold its regular meetings through the months of July and August.

Concord grange, No. 408 will observe "Neighbor's Night" Friday evening.

Mrs. Gagie Frost has returned to her work in Howard, R. I.

Mrs. F. E. McDonald of East Burke was a guest of her parents, Mr. and Mrs. O. B. Cutting, one day last week.

Mr. and Mrs. H. D. Webster and Mrs. Jefferson Welch and little son of East Burke visited in town one day last week.

Mrs. Jane Williamson of St. Johnsbury visited friends in town last week.

Mrs. B. F. Rollins of St. Johnsbury was a guest of Mrs. C. A. Miltimore last Tuesday and Wednesday.

Mrs. Benjamin Dwinell who has spent the past winter at Lewiston, Me., returned here Tuesday of last week. Her daughters, Miss Gladys, Beatrice, and Beryl Young, came from Lyndon Wednesday and are stopping with their mother.

Mrs. John Folsom of East Concord was a guest of Mrs. A. D. Forsaith last week Tuesday and Wednesday.

Mrs. Ira Grant, Miss Pearl Grant of East Concord, Marion Tinker of St. Johnsbury, and Mrs. Harry Sweet of East St. Johnsbury visited Mrs. Harry Morton, last week.

Mrs. Williams from Waterford is housekeeping for Ira Lee.

Mr. and Mrs. Wilford Harvey of St. Johnsbury and Mr. and Mrs. Alfred Sunberg from Waterford were Sunday guests of their parents, Mr. and Mrs. Edgar Harvey.

Mrs. Fred Smith of St. Johnsbury was a guest of Mrs. K. F. Richards, part of last week.

Mr. and Mrs. Abial Cheney are stopping with Mr. and Mrs. E. J. Williams.

Eugene Rash of Barton was at F. L. Carpenter's last week.

Mr. and Mrs. John Smith of Barton came Friday to visit their son, Lafa Smith.

Earl Metcalf of Coventry is stopping with Mr. and Mrs. L. F. Smith.

Mrs. Mamie Tettler of Lawrence, Mass., Mrs. Harrison Wright of South Ryegate, Mrs. A. N. Daniels from Waterford and Miss Helen Stearns of St. Johnsbury were guests of Mrs. Ernest Lee the last of the week.

Mrs. E. D. Lee and son, Howard, are spending the week with Mrs. Lee's aunt, Mrs. George Stearns and other St. Johnsbury friends.

Miss Carrie Damon of East St. Johnsbury was a guest of Mrs. A. J. Lyon Wednesday. Mr. and Mrs. Robert Parks and two children, Ruth and Henry, spent Sunday at the Lyon home.

Mrs. A. J. Hull spent Friday at North Concord.

St. Agnes Guild will serve ice cream in the town hall Thursday evening.

Mr. and Mrs. Arthur Warren of Kirby spent Sunday with Mr. and Mrs. D. W. Williams.

Mrs. W. J. Chapman and son, Harold and daughter Miss Leona, went Saturday to spend several weeks with relatives in Morrisville, Walcott and Craftsbury.

Woodbury W. R. C., No. 5 will serve a baked bean and salad dinner at their hall July 4. Ice cream will be for sale during the day and evening.

George Crane and Mrs. Robert Vance from Danville were at S. J. Haviland's the last of the week.

Mr. and Mrs. George Palmer and daughter, Madeline, were week-end guests of their parents, Mr. and Mrs. W. C. Harvey. Mrs. Harvey goes this week to "Kaulin," Lake Morey for the summer.

The base ball nine played the East St. Johnsbury team Saturday p. m., with a result 14-3 in favor of the Concords.

Mr. and Mrs. M. B. Carpenter and Mr. and Mrs. E. N. Willis enjoyed a trip to Dixville Notch one day last week.

Mrs. Henry Matthews of Brooklyn, N. Y., and Mrs. Nancy Hosford of St. Johnsbury have been guests of Mr. and Mrs. M. J. Spaulding and other friends in town.

Arthur Streeter of St. Johnsbury was a recent guest of his parents, Mr. and Mrs. C. N. Streeter.

Mrs. Philena Drown went Tuesday to spend two weeks with her granddaughter, Mrs. Herman Burpee at Lyndonville.

Mr. and Mrs. H. C. Douglas of St. Johnsbury and Mr. and Mrs. Dudley Walter of Kirby spent Sunday at Pioneer cottage, Shadow Lake.

Mr. and Mrs. Austin Moyse were guests of Victory friends the last of the week.

Mr. and Mrs. Clarence Cole have moved from East Haven into James Virtue's house. Mr. Cole will work on the dam.

Mr. and Mrs. George H. Hastings and two daughters, Marion and Mildred, spent Sunday with Mr. Hastings' mother, Mrs. Marina Hastings.

Mr. and Mrs. W. H. Wright and John Hutchinson from Laconia, N. H., were guests of Mr. and Mrs. A. J. Lyon, Thursday.

Mrs. Wells Quimby of Lyndon visited her sister, Mrs. Alvar Belden the first of the week.

The Epworth League will hold a meeting Thursday evening at 7.30. Subject, "The Social Basis of the Last Judgment." Leader, Mrs. L. F. Smith.

The L. B. Society will meet with Mrs. M. B. Carpenter, Wednesday, afternoon and evening. The ladies are especially requested to be present in the afternoon and the young people in the evening. Refreshments at the supper hour.

There will be no service at the Methodist church next Sunday morning. Sunday school at the usual hour. At one o'clock an education rally will be held. Rev. R. N. Joscelyn of Newport will speak. Mr. Joscelyn is recently from the west and is an interesting speaker. Evening service at 7.30.

Miss Sadie Bedell has gone to spend her vacation with Mrs. Horace Cutting.

Walter D. Chaplin spent part of last week with Mr. and Mrs. Frank Temple at East Burke.

Dr. W. J. Beattie of Littleton, N. H., was in town Tuesday to administer the tuberculosis treatment to Mrs. S. C. Haviland.

Mr. and Mrs. L. V. Hastings and son Frank of St. Johnsbury were guests of relatives in town over Sunday.

Mrs. Emma Dodge of Worcester, Mass., is a guest of her sisters, Mrs. E. H. Bazin and Mrs. Alice Richards.

The June committee at the Universalist church added $7 to the treasury from their food sale Wednesday afternoon.

Luther Green from St. Johnsbury spent Saturday with his sister, Mrs. Sarah Hovey.

Miss Genevieve Sargeant spent Monday in St. Johnsbury.

Mr. and Mrs. D. W. Jenness from St. Johnsbury Center were guests of Mrs. Cora L. Bailey, Thursday.

Mrs. Harriette Hudson Rich and sons, Robert and Gerald, from St. Johnsbury went Sunday to North Concord to spend a few days at the home of W. M. Rich.

Miss Mrytle and Lyle and Fred Spaulding were Sunday guests of Mr. and Mrs. E. A. Morse in Lunenburg.

Henry Hill, who lives at the home of his son, M. J. Spaulding, celebrated his 92d birthday, Tuesday, June 17. Mr. and Mrs. Frank Hooker, Mrs. Ralph Hooker and Mrs. Judson Evans of St. Johnsbury were his guests for the day.

Mr. and Mrs. D. B. Sampson have closed their house and gone to the boarding house at Miles Pond, where they will board the town road help.

EAST BARNET

Mrs. Jane Owen is more comfortable.

Miss Elsie Bowman and Mrs. Mary Bowman Fish from Pueblo, Colorado and Mr. and Mrs. John Foster were visitors at C. Dickinson's, Saturday.

Mrs. Marion Lang Evans from Marshalltown, Iowa, is visiting Mr. and Mrs. C. Dickinson and other friends here.

Mr. and Mrs. George Nelson went Monday to Burlington and Marjorie went Saturday to attend the graduation exercises of Miles' class. George Gammell went Tuesday.

Charles Harvey and family and Mr. Glenn went to Fairlee Sunday to Fred Moore's.

Mr. and Mrs. Charles Bandy from Waterford visited his sister, Mrs. Nettie Lindsay, one day last week.

Mr. and Mrs. R. C. Rowell and William Bandy visited at Fred Lindsay's, Sunday.

Mr. and Mrs. A. Blandin visited at Joseph Hastie's Friday.

Elmer Roy who is at Brightlook Hospital is getting along first rate.

Agnes and Mabel Miles from Passumpsic are keeping house for Mrs. Nelson, while she is at Burlington.

R. B. Gammell was at Middlebury last week and visited Robert Cartmell.

Fred Quimby was home over Sunday.

The Helping Hand met with Mrs. C. Dickinson Wednesday and a very pleasant afternoon was enjoyed.

Mrs. William Galbraith and daughter from Lancaster and William Service are guests of Mr. and Mrs. James R. Galbraith.

Elbridge Farnsworth spent several days last week at Willis Smith's in Monroe.

WATER POWER IN NEW ENGLAND

Many Advantages Over Other Sections In Fall and Flow of Her Rivers.

Industrial Boom Should Follow Their Use For Hydroelectric Purposes—Figures Show She Already Leads.

The problem of harnessing our rivers and utilizing their power to move the wheels of commerce and industry is today a subject of ever increasing study, and it is one fraught with tremendous importance to the future of New England.

The increase in the price of coal, the fact, as shown by geologists' reports, that our coal supply is not inexhaustible, particularly the supply of anthracite, have turned our thoughts to the river, have bade us try to avail ourselves of its friendly flow and utilize the enormous energy which it represents.

The increased attention given to this subject resulted a few years ago in the geological survey making a careful examination of the country's water power, and a year ago the bureau of corporations revised and extended the work so as to show the extent to which water power has up till now been utilized. The report of the commissioner of corporations, for one thing, pointed out that the great bulk of the water power of the country was on its edges —in other words, that New England, New York and Pennsylvania and a few south Atlantic states, together with the Pacific, contained pretty much all that there was of it.

The following are the principal rivers whose potential water power is so important to New England and which should make it pre-eminently the place for manufacturing opportunities:

St. Croix River, Maine.

Total fall 426 feet in 80¼ miles; drainage area, 1,674 square miles; maximum rate of fall 50 feet per mile at Sprague Falls.

Penobscot River, Maine.

Total fall 1,509 feet in 200 miles; drainage area, 8,934 square miles; maximum rate of fall, 19.7 feet per mile at Chesuncook lake.

Kennebec River, Maine.

Total fall 1,062 feet in 138 miles; drainage area, 6,400 square miles; maximum rate of fall, 14.7 feet per mile near Moosehead lake (source).

Androscoggin River, Maine.

Total fall 2,226 feet in 199 miles; drainage area, 3,696 square miles; maximum rate of fall, 48.1 feet per mile near Magalloway lake (source).

Saco River, Maine.

Total fall 1,880 feet in 104 miles; maximum rate of fall, 94.6 feet per mile at or near source; drainage area, 1,750 square miles.

Merrimac River, New Hampshire and Massachusetts.

Total fall 269 feet in 110 miles; maximum rate of fall, 52.0 feet per mile at Manchester, N. H.; drainage area, 4,864 square miles.

Contocook River (Branch of the Merrimac).

Total fall 865 feet in 56 miles; maximum rate of fall, 70.0 feet per mile at Bennington, N. H. (Drainage area included in Merrimac.)

Connecticut River.

Total fall 2,088 feet in 375 miles; maximum rate of fall, 34.3 feet per mile at Connecticut lake; drainage area, 11,289 square miles.

Housatonic River.

Total fall 983 feet in 123 miles; maximum rate of fall, 19.4 feet per mile at Falls Village, Conn.; drainage area, 1,933 square miles.

Labor is generally more plentiful, particularly skilled labor, where the conditions of living are the best, where there is the best environment for the home, the best educational advantages. It is for reasons such as these that New England has such a large population of skilled mechanics. It is for these reasons that years ago it became an industrial region almost without equal in this country; hence it must be that with the development of the enormous power lodged in her streams and its conversion into electrical energy possible of transmission over an extended area there should be no question but that this region is to be the scene of great industrial expansion through the superior advantages it will thus offer to manufacturers.

Hydroelectric power—the power of the flowing stream converted into electrical energy through the use of turbines—may not be cheaper than steam in some places, for its cost to the consumer varies with conditions. It seldom runs higher than steam and in many instances much lower—as, for instance, at Rumford Falls, in Maine, where the power of the river thus converted is supplied to nearby manufacturing establishments at a cost of a third of a cent per kilowatt hour. But even with its cost approximately that of steam, with coal at its present price, it cannot be doubted that the region possessing a large and well distributed supply of such power is going to prove attractive to industry, and particularly to new enterprises, by reason of the fact that through its use there is saved to the manufacturer a large percentage of his capital which would otherwise have to be expended in a steam plant. This saving can be used to enlarge the size of the plant and increase its capacity. Consequently with the completion of even a few of such hydroelectric stations as are now being erected New England should see a growth in her industries, though these plants encroach but little on her potential water power.

That New England has long recognized the friendly power of her streams and been a leader in developing such power by the old methods in vogue before the present age of electricity is shown by the figures. The total developed water power of the country at the present time was estimated by the commissioner of corporations in his recent report at about 6,000,000 horsepower. Of this New England had about 36 per cent, New York 30, Minnesota and Wisconsin 17 and South Carolina 5. The minimum potential water power—that is, all the power lodged in the lakes and streams of the entire country—was placed at 26,736,000, including that already under development. The maximum was placed at 51,398,000. At the recent conservation congress it was estimated that the utilization of even this minimum amount would mean the saving of 600,000,000 tons of coal.

According to the census figures, more than two-fifths of the total power derived from water wheels by manufacturing establishments is found in New England. More than one-quarter of the total power of all kinds used in New England's many factories is supplied by water wheels. No such showing is to be found anywhere else in the United States. If this showing has been made with the old form of power transmission, revealing as it does how readily her rivers by reason of their great fall and flow have lent themselves to man's purposes in this respect, what must be the opportunities for her industrial growth in the new method of harnessing the stream, a method by which the power represented by the river's fall is taken and converted into electrical energy and distributed throughout a territory many miles in extent!

Today no longer does man have to come to the stream and build his plant at the brink of the fall. Instead he brings the power to him. Here is a method by which the plunging waters are led tamely through tunnel or canal so that the force of their fall may move mighty dynamos, a method by which the hand of man, so to speak, reaches out and, wresting the power from the river, uses it to run his mills, light his streets and move his trolley cars, though these may be a hundred miles and more away. And yet this new method is practically in its infancy.

The following table gives the amount of water power her plants are developing today and what they are capable of, a distinction being made between those establishments designed to sell power for commercial purposes and those run in connection with manufacturing plants:

	Commercial.	Manufacturing.	Undeveloped.	Total.
Maine	55,360	168,338	100,000	323,698
New Hampshire	16,450	103,658	13,500	133,608
Vermont	53,648	40,197	44,460	138,305
Massachusetts	76,697	53,922	14,630	145,329
Connecticut	32,000	15,519	4,000	51,519
Total	244,155	381,634	176,580	797,459

Here is a table of the potential water power of New England as estimated by the geological survey and revised in the bureau of corporations' report, both the minimum and maximum being given:

Maine	532,000	971,000
New Hampshire	162,000	295,000
Vermont	113,000	206,000
Massachusetts	142,000	273,000
Rhode Island	7,000	18,000
Connecticut	86,000	164,000
Total	1,042,000	1,925,000

It will be seen from these tables that the amount of water power now being used in New England is about 60 per cent of the minimum and a trifle less than 32 per cent of the maximum as figured out by the government experts. The amount of power these plants are capable of producing if fully developed is about 77 per cent of the minimum and about 41 per cent of the maximum. At the present time New England has a total of thirty-one commercial plants in operation. And yet, despite this fact and the fact that 25 per cent of the power in her manufacturing establishments is water power, taking the mean of these figures it would appear as if, roughly speaking, she had availed herself of not more than half of her water power.

Hydroelectric development must of necessity have its limitations. The practical limit of transmission for the current generated by this method was recently placed by one of the leading engineers of the country at 200 miles. The expense of these transmission lines must needs be great, requiring, as they do, a superior type of construction to carry the high voltage cables and a protected right of way through the country. In the case of one Massachusetts company, the New England Power company, a strip 150 feet in width has been cleared for its transmission lines. It is obvious therefore that that region is placed at the greatest advantage whose water power is the best distributed.

Great as may be the collective water power of a state it is at a decided disadvantage so far as its attractiveness to manufacture goes if it is concentrated at one spot like Niagara. It is 450 miles from Niagara to New York. In New England there is probably no populous center more than 150 miles from some large power site. In short, in no other part of this country is the water power so well distributed for industrial use as here. It offers a rare field for the development of hydroelectric power plants because all over New England these great water power sites are found near a market. Of New England can it be said that today she has a greater asset in her water power than Pennsylvania in her coalfields.

While hydroelectric development is comparatively new, capital has not been slow in seeking this form of investment in this region, as is shown by the total of her plants in operation and under construction. Only a few of the manufacturing states have developed power commercially to the extent of Maine or Massachusetts.

In the New England Power company Massachuetts has by far the largest single development in the New England states. It is the largest development east of Niagara, covering three states in its operations. Today with four plants in operation it is developing 70,000 horsepower. Eventually it will have eight plants in operation with a total output of power amounting to 200,000 horsepower.

The electrical energy to be furnished by this company in 1914 will replace annually 225,000,000 tons of coal.

All told this development will represent an investment amounting to over $4,000,000. Today this company is moving cars in Worcester and will soon be supplying power to the trolley lines of Fitchburg. It is running cotton mills in Clinton and Fitchburg, wire mills and car works in Worcester, is supplying current for the lighting of Fitchburg, Gardner and Marlborough and is selling power to lots of local electric companies in smaller towns throughout a wide area. Its operations cover a zone reaching from Keene, N. H., to Monson and Uxbridge, in southern Massachusetts. Eventually its lines will reach as far south as Plainfield, Conn., and Providence, R. I.

This plant was finished in January, 1910. Its output in 1912 amounted to 64,000,000 kilowatt hours. The other plants of the New England Power company are located on the Deerfield river, which, rising in the Green mountains of Vermont, empties into the Connecticut at Greenfield, Mass. The great problem connected with this development was the creation of a storage reservoir of sufficient size to tide over the low water season. One storage basin has already been constructed and work has been begun on a second which will impound altogether 55,000,000 gallons of water, thus insuring an adequate supply of water for the power plants throughout even the driest summer. There are now three of these plants completed and in operation on the Deerfield river, each containing three generators with the capacity of 8,000 horsepower each.

One plant is located two miles above the town of Shelburne Falls, another is opposite the village, and the third two miles below it. Within a short time a fourth plant will be completed on the river just above the Hoosac tunnel, with a capacity of 20,000 horsepower.

Ultimately this company expects to develop 100,000 horsepower on the Deerfield river alone.

To carry this great load 175 miles of transmission lines are now in use or being erected. These lines are built on their own right of way and can be seen for miles around.

Second only to this development is that of the Turners Falls company, promoted by the Cabot and Crocker interests of Boston. At Turners Falls the Connecticut drops abruptly some thirty feet. Its falls have been used for power purposes by the old method for generations. The dam, built in the sixties, has a crest of 1,000 feet. For hydroelectrical purposes the old canal was widened a few years ago and a power plant installed which yields 7,000 horsepower. In this way the energy of the turbulent river has been rendered possible of transmission far beyond the river bank. Today a new dam is being built and engineers are extending this canal with a view of wresting still greater power from the river by leading it to a point two miles below where another fall of sixty feet will produce electrical energy equal to 40,000 horsepower.

The power which is being developed of Turners Falls is sold to a number of allied companies which act as distributers. In this way it reaches many towns, including Riverside and Millers Falls. Through the Greenfield Electric Light company it reaches South Vernon, Northfield, Bernardson, Deerfield, Colerain, Buckland and Greenfield and through the Amherst and Easthampton Gas companies Amherst, Sunderland, Whately, Hatfield, Hadley, Easthampton and Southampton. Turners Falls is but forty miles from Springfield. It is aimed to extend the transmission lines ultimately to supply industries not alone in Springfield, but in Chicopee and Westfield. In many of these towns, particularly Turners Falls, hundreds of factory sites are within easy reach of this power, whose price necessarily cheapens as the length of transmission shortens.

Another recent New England hydroelectric development is that at Rumford Falls. It has resulted already in converting what was twenty years ago a wilderness into a modern city with a population of 10,000 people. Here where the Androscoggin river has a ninety-nine foot fall a station has been built developing 20,000 horsepower. Over a million dollars has been spent on two great dams. Instead of canals the rushing waters at Rumford Falls are led through great steel tubes into the power station. The mills of the International Paper company take over 11,000 horsepower alone. The Oxford Paper company consumes 5,000 more and the Fort Hill Chemical company 1,250. The Central Maine Power company, located at Oakland on the Messaloushee river, is still another development with 6,450 horsepower developed and 32,000 undeveloped.

Connecticut is not without its hydroelectric development, for at Bulls Bridge, on the Housatonic, there has been for some years in operation a plant developing 30,000 horsepower. Besides running the trolley lines of the Connecticut company in Waterbury and New Britain, the latter fifty miles away, this power is today running several industrial plants besides local lighting interests.

These are but a few of the most important of the central hydroelectric stations already established and in process of construction in New England by which a partial utilization of the immense energy of its water courses may be accomplished and the power thus generated sold commercially. Scattered throughout this region at the present time are thirty-one plants designed to sell power commercially as distinguished from the scores of mills which still take power directly from the streams on whose banks they are located.

That these stations have already had the effect of cheapening power to some extent for the manufacturer there is no doubt. The increase of such plants, which is bound to occur, is certain to have a still greater effect in this line, all of which will redound to the advantage of the manufacturer who seeks New England.

Today the rates for large quantities of power vary from 3 mills per kilowatt hour at Rumford Falls, Me., to 1.6 mills in various parts of Connecticut.

If used in large quantities there is without question a considerable saving over steam according to those competent to judge the results.

In order to aid this development the industrial bureau of the New England lines has collected a list of available water power sites in New England and already there have been many inquiries for the same.

It is also about to undertake a careful tabulation of all the development work at present under way and which will redound to the benefit of New England's industries, whose promotion is one of the chief aims of the New England lines.

That manufacturers are beginning to appreciate the advantage New England possesses in opportunities for such development coupled with her supply of skilled labor there can be no question. It was her broad rivers and rushing streams which aided her settlement and stimulated her development in the early days of her history by affording easy means of communication and furnishing power to turn the water wheels of her infant industries. Today these same streams are stored with a dynamic force which when converted into electrical energy will be sufficient to move her mills and be the means of a new industrial growth rich in promise for generations yet to come. And the supply is inexhaustible.